Attachment BR-16B
Draft

Biological Resources Mitigation Implementation and Monitoring Plan for the Cosumnes Power Plant, Sacramento County, California

Prepared for

Sacramento Municipal Utility District

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CH2MHILL

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1.0 Introduction

Note: This draft Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will be updated when the Conditions of Certification are finalized in the Final Decision and when the various natural resource agency permit conditions are available. In addition, aerial photographs will be flown during appropriate weather conditions prior to the start of construction as per BIO-5.

The following sections present project background information, the location and a description of project features, and the purpose of this Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). The purpose of the BRMIMP is to identify and compile the biological resources mitigation, monitoring and compliance measures from the Applicant and CEC Conditions of Certification (COCs). The BRMIMP will eventually contain Conditions as recommended by the Applicant, COCs required by CEC, and conditions required by various federal, state and local permits. Permits anticipated for this project are listed in Section 4-1. The BRMIMP will be updated regularly to include COC and permit conditions as this information becomes available.

1.1 Background

Sacramento Municipal Utility District (SMUD or District) proposes to develop approximately 30 acres of vacant land for a 1,000-megawatt (MW) natural gas-fired power plant (the Cosumnes Power Plant [CPP]) and associated linear facilities in Sacramento County, California. An Application for Certification (AFC) for CPP was prepared under Title 20 of the California Code of Regulations and was submitted to the California Energy Commission (CEC) on September 13, 2001. The CEC staff assessment is the functional equivalent to the California Environmental Quality Act (CEQA) environmental impact report (EIR).

The CEC is the state lead agency for the project and reviews and modifies the project for compliance with laws, ordinances, regulations, and standards (LORS) required for the project, as well as any mitigation and protection measures for sensitive biological resources. The AFC presents a detailed description of all aspects of the project and addresses potential project impacts to sensitive biological resources in the project area. A Biological Assessment (BA) has been prepared under Section 7 of the Endangered Species Act (ESA) that further refines the analysis of impacts to special-status species that could potentially occur, within the CPP project area. The BA was developed in compliance with the ESA and all applicable regulations and was submitted to the or U.S. Army Corps of Engineers (USACE), The USACE initiated formal consultation with the U.S. Fish and Wildlife Service (USFWS) February 28, 2003. A Biological Opinion (BO) from the USFWS is forthcoming. NMFS provided a determination that the CPP is not likely to adversely affect federally listed or threatened salmonid species, or designated critical habitat, and concluded ESA Section 7 consultation on March 17, 2003. Upon issuance of the USFWS BO, the USACE will authorize the wetland fill pursuant to Section 404 of the Clean water Act. Finally, the permit will become effective with the issuance of Water Quality Certification from the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act.

1.2 Project Site Location

The project site is located 25 miles southeast of the City of Sacramento, on the eastern edge of the Sacramento Valley in Sacramento County (see Figure 1). The project would be located on a 30-acre parcel about 1500 feet south of the existing non-operational Rancho Seco Plant (Rancho Seco or RSP) on a portion of a 2,480-acre site owned by SMUD. This location will allow the reuse of existing water systems, switchyards, and transmission lines that are already in place at Rancho Seco. The project is at 150 feet elevation, at the base of the foothills that rise to the Sierra Nevada east of the project. The water supply line and electrical transmission line are in the same location and habitat as the project. The site is located on the Goose Creek quadrangle, United States Geological Survey (USGS) at Township 6N, Range 8E.

CPP would be served by a 24-inch diameter natural gas pipeline beginning in south Sacramento where it ties into the SMUD system near the Carson Ice-Gen site. It crosses several roadways and is adjacent to railroad rights-of-way in the south County, crosses under several foothill streams and irrigation ditches typical of the Sacramento Valley, and then lies adjacent to the road right-of-way (ROW) along Twin Cities Road and Clay East Road, in predominantly hay fields, alfalfa fields, and vineyards. The gas pipeline alignment is located within the Clay, Galt, Elk Grove, Bruceville, and Florin quadrangles.

The region's climate is Mediterranean, characterized by hot, dry summers and cool, wet winters. Summer high temperatures frequently exceed 100 degrees Fahrenheit (°F); winter temperatures are generally mild, with fewer than 20 freezing days per year. Rainfall averages 16.7 inches per year, most of which falls between November and March.

1.3 Project Description

CPP will consist of a nominal 1,000 megawatt (MW) combined-cycle natural gas-fired power plant. The plant will be constructed in two phases, each consisting of 500 MW. Each phase will have two combustion turbines, one condensing steam turbine, and two heat recovery steam generators (HRSG). CPP site preparation will require realignment of intermittent streams to the north and east sides of the site.

The CPP project will include the following associated features:

- A new 0.4-mile long 230-kV transmission line will extend north-northeast from the proposed switchyard at the CPP site to the existing Rancho Seco Nuclear facility site's 230-kV switchyard. Approximately 3 new steel pole transmission towers will be required.
- Natural gas for the facility will be delivered via a new 24-inch diameter pipeline extending 26.5 miles from SMUD's existing transmission backbone pipeline network that currently terminates at the Carson Ice-Gen Facility in Elk Grove.
- Water for cooling will be supplied by a new 0.4-mile pipeline connection to the existing 66-inch diameter water line that conveys water from the Folsom-South Canal. Zero Liquid Discharge (ZLD) will be used for discharging process water, eliminating contaminants to Clay Creek and the Cosumnes River watershed.

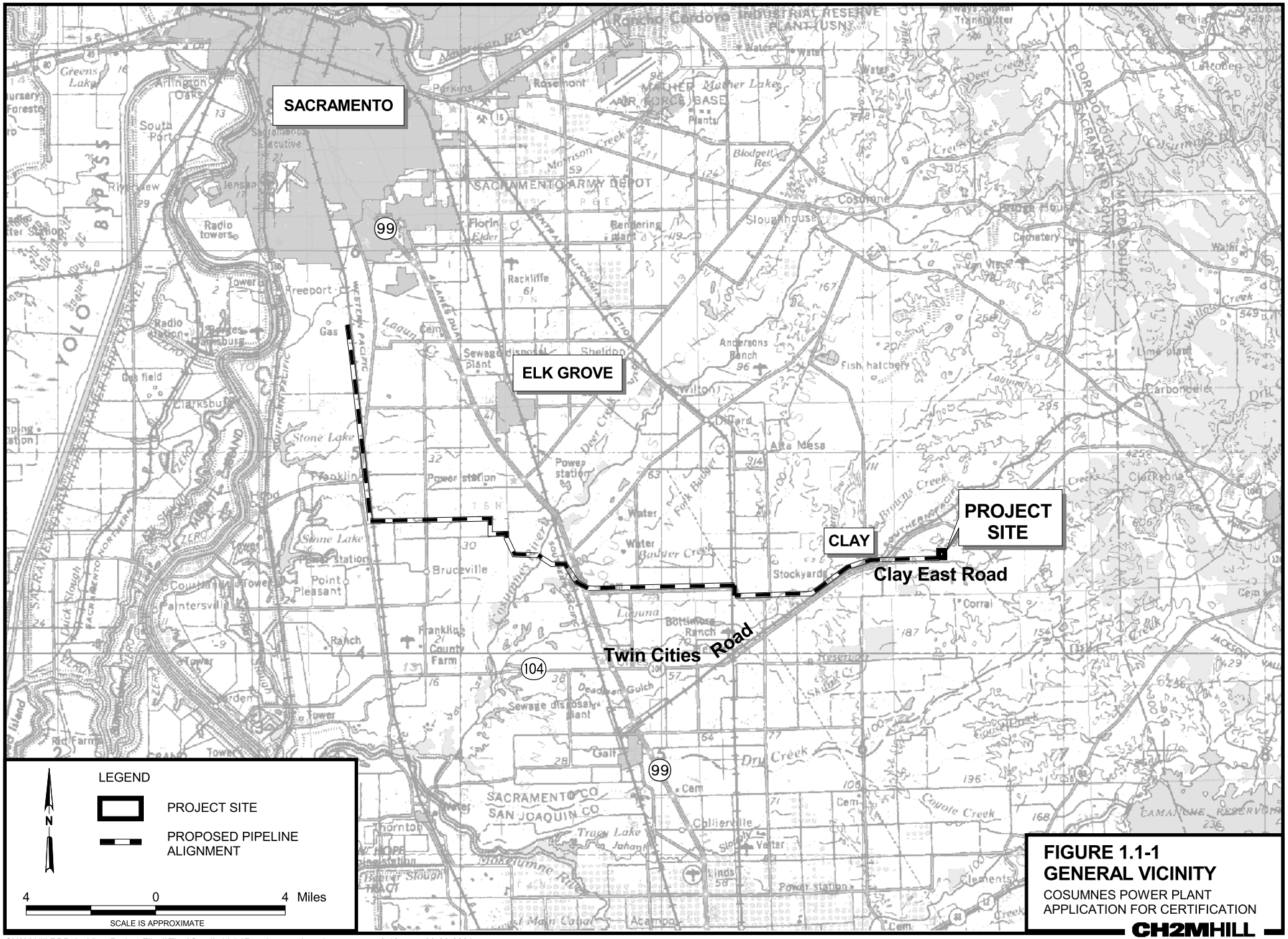

FIGURE 1.1-1
GENERAL VICINITY
COSUMNES POWER PLANT
APPLICATION FOR CERTIFICATION

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- Domestic water and process makeup water will be supplied by diverting a portion of the cooling water from the Folsom-South Canal to a package treatment plant.
- A storm water detention basin and outfall structure to Clay Creek are located in the northwest corner of the CPP site.
- An approximately 18 -acre temporary construction laydown area would be located in agricultural land south of the CPP site. The ephemeral creeks on the laydown area will mostly be avoided, however, the portions near Clay East Road will be realigned. The annual grassland area will be restored after construction is complete.

1.4 Sensitive Biological Resources

Wildlife habitats include annual grassland, pasture, agricultural fields, and riparian woodland. Wetlands and waters of the U.S. include vernal pools, seasonal swales, intermittent and perennial streams (Clay, Badger, and Laguna creeks), and the Cosumnes River and its tributaries. The gas pipeline will cross the Cosumnes River Preserve, which supports habitat for special-status plants and wildlife as well as resident and migratory wildlife species. Developed areas, primarily along the gas pipeline, include county roadways, residential houses, and commercial/industrial areas. Figure 2 presents locations of sensitive species known to occur in the project area.

1.4.1 Vernal Pools and Vernal Pool Species

Vernal pool plant and invertebrate species occur in vernal pools and seasonal wetlands in annual grasslands or pastures and occur in or near the project area. These species include plants such as legenere, downingia, orcutt grass, and navarretia that are endemic to vernal pools, as well as fairy shrimp and tadpole shrimp. The federal threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and federal endangered vernal pool tadpole shrimp (*Lepidurus packardi*) are short-lived crustaceans, approximately 1-inch long, that live in vernal pools and occasionally ditches or swales that have similar hydrology to vernal pools. They exist as cysts (eggs) in the summer, and hatch when hydrated by winter rains. They are known to occur in vernal pools east of Rancho Seco, and north of the project site. They also occur or are presumed to occur in vernal pools and swales along the pipeline corridor.

1.4.2 Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*) is a listed federal threatened species limited to the Central Valley of California. VELB are approximately 3/4 of an inch long and have long, segmented antennae. The wings of female VELB are dark metallic green with red trimmings and males may have a similar appearance or have red-black wings with dark green spots. The VELB is dependent on its host plant, elderberry (*Sambucus* spp.). The larvae normally occupy elderberry stems, trunks, and roots greater than 1 inch in diameter. Larvae and pupae remain in the stems for 1 to 2 years until they emerge as adults in the spring. Adult emergence is from April through June, about the same time the elderberry produces flowers. External sign of the species on elderberry plants is primarily limited to exit holes created by adults chewing their way out of the stems after pupation. Surveys for potential VELB habitat were conducted on September 4 and October 17, 2002. A total of nine elderberry shrubs were identified within 100 feet of the proposed

Figure 2. Sensitive Biological Resources Cosumnes Power Plant Project

pipeline construction corridor. Three of the identified shrubs were within 20 feet of the proposed construction area. These three shrubs are near the corner of Elk Grove Boulevard and the UPRR appear to have been planted near the railroad tracks. The associated habitat is ruderal (not riparian) and there were no exit holes observed.

Additional elderberry shrubs occur in the vicinity of the Cosumnes River crossing. These shrubs occurred in ruderal habitat, and contained no exit holes. All elderberry plants are located in areas that will be avoided by using the horizontal directional drilling method, where the gas pipeline is placed underground without surface disturbance. With avoidance measures, no impacts to VELB are anticipated. SMUD anticipates that all such shrubs can be avoided during construction activity; consequently, potential impact to the beetle can be eliminated.

1.4.3 Fish Species in Cosumnes River Watershed

Steelhead, salmon, and splittail occur in the Cosumnes River watershed. The Central California steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit (ESU) is a federal proposed endangered population (Federal Register, 1996 and 1997). The Central Valley steelhead migrates from the Pacific Ocean through the Delta to spawn in the Sacramento and San Joaquin River basins. The Cosumnes River is used during migration by adult spring- and fall-run Chinook salmon (*Oncorhynchus tshawytscha*), proposed as Federal endangered and Federal threatened, respectively. Chinook salmon occur in the Sacramento-San Joaquin Delta year-round as adults and/or juveniles. Adult chinook salmon migrate upstream from the Pacific Ocean to faster waters of Central Valley rivers, spawn in gravel nests, and die. Adult upstream migrants occur in the Sacramento-San Joaquin Delta in four "runs" or peak periods: fall, late fall, winter, and spring. The duration of these four runs overlap; therefore, adult chinook can be found in the Delta throughout the year. Juvenile chinook salmon from all four runs emigrate through the Delta during cool weather from October through June (USBR 1997). The Cosumnes River contains spawning habitat for Sacramento splittail (*Pogonichthys macrolepidotus*), a federal threatened species. It is endemic to California's Central Valley, is most abundant in the Suisun Bay and Marsh region (USFWS 1995). Peak spawning occurs from March through May in sloughs and other shallow, slow-moving water habitats (USFWS 1995). Fish in the rivers are vulnerable to sedimentation from construction activities inside the banks and to adverse changes in water quality.

1.4.4 California Tiger Salamander

California tiger salamander (*Ambystoma californiense*) is a federal Candidate species and California Species of Special Concern. California tiger salamander larvae were detected in ponds approximately 1 mile east of Rancho Seco, and there are records of tiger salamander north of Rancho Seco. Site specific surveys were performed in 2001-2002 and again in April and May 2003 for the salamander, and it was determined that no breeding ponds would be affected by construction. A breeding pond was found ¾ mile east of the CPP site, indicating the surrounding area as suitable aestivation habitat. Protection measures include constructing on the site during the dry season under the biological monitors observation to avoid harming adult salamanders.

1.4.5 Western Pond Turtle

Western pond turtle (*Clemmys marmorata* and *Clemmys marmorata*) is considered federal Species of Concern and California Species of Special Concern. They are found in suitable aquatic habitats throughout California west of the Sierra-Cascade crest. They require permanent or nearly permanent water, such as ponds, lakes, streams, or irrigation canals. They overwinter under water or on land when water temperatures are below 15°C, from October or November until spring. Mating begins in April or May, but can occur year-round (Jennings and Hayes 1994). Suitable habitat for Western pond turtle occurs in the riparian corridors the Cosumnes River, as well as Badger and Laguna Creeks. A western pond turtle has been reported in Clay Creek, Cosumnes Preserve, and ponds in the vicinity of the CPP project area.

1.4.6 Giant Garter Snake

Giant garter snake (*Thamnophis gigas*) is a Federal and California threatened species. They live year-round in the irrigation canals, rice fields, and marshes of the Cosumnes River Preserve. They spend most of their time in or very near water, where they forage for fish and frogs. Giant garter snakes hibernate in animal burrows above floodwaters from October through April. Giant garter snakes are sensitive to loss of habitat and are vulnerable to earth moving construction equipment, especially during hibernation. Riparian and aquatic habitats along the Cosumnes River and Badger Creek support habitat for giant garter snake and they may occur in other small tributaries and drainage ditches in the area. Extensive protection measures for giant garter snakes will be implemented throughout the project site and gas pipeline alignment.

1.4.7 Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a California threatened species that nests along the Cosumnes River and large isolated trees along farm roads from March through September. There is evidence to indicate that the population that breeds in California is distinct from those in the central United States and may warrant additional protection. They forage for small birds and mammals in crop fields and grassland habitats. Most Swainson's hawks winter in Central and South America. Swainson's hawks are sensitive to loss of forage and nesting areas and may abandon nests if disturbed by construction activities. The annual grassland and most agricultural habitat through which the pipeline passes is considered foraging habitat for Swainson's hawk.. Riparian trees along the creeks and river and isolated trees along farm roads provide suitable nest sites. Seven active nest sites were observed during April 2003 nesting surveys along the gas pipeline. Extensive protection measures for Swainson's hawks will be implemented throughout the gas pipeline alignment.

1.4.8 Western Burrowing Owl

Western burrowing owl is a federal Species of Concern and a California Species of Special Concern. Optimum burrowing owl habitat consists of open grassland or prairie with short vegetation and an abundance of mammal burrows. Burrowing owls prey on small mammals, insects, and crayfish, and can feed on carrion. Short vegetation may increase prey availability, enhance predator detection by the owls, and attract burrowing mammals that provide nest sites for burrowing owls. There have been active burrowing owls nests along

the UPRR, near Simms road prior to 1998. There is an active nest approximately 600 feet east of the UPRR on Simms Road. There is a CNDDB record of a pellet found near a burrow entrance approximately 600 feet north of the Rancho Seco project site. In spring of 2003, no burrowing owls were observed within project construction areas but numerous burrows were noted approximately 1800 feet east of Core Road, and in the northwest quadrant of the project site. Additional preconstruction surveys will be conducted 48 hours prior to ground disturbance to identify if any owls moved into the area. Currently, no habitat compensation is warranted for burrowing owls since none were found to be affected by the CPP project.

1.4.9 Greater Sandhill Crane

The greater sandhill crane (G*rus canadensis tabida*), a California threatened species and California fully protected species , spend winters foraging in the Central Valley near Lodi and the Cosumnes River. The crane "roosts" in shallow open water in fields to avoid predators. Important roost sites in the Cosumnes watershed include the area near Bruceville and Franklin Roads (approximately 5 miles west of the pipeline), and south east of Highway 99 (approximately 0.5 mile south of the pipeline). The HDD location under Cosumnes Preserve supports sandhill cranes in the winter, however, the HDD work will be conducted during the summer when cranes and salmon are not in the Cosumnes River area. Some birds occasionally roost in the "snake pond" southwest of Highway 99, approximately 300 yards west of the proposed pipeline. Construction through this area is seasonally constrained by the need to conduct horizontal directional drilling during the dry season, the potential presence of Swainson's hawk nests from March through September and the arrival of the sandhill cranes around September 15th. Construction in this area is proposed to last 4 to 6 weeks, and birds may reduce their use of the area during construction. However, there is extensive alternative foraging and roosting habitat in the agricultural fields and ponds surrounding the area and in the Cosumnes River Preserve. SMUD believes cranes will (at most) move away from the construction area for a brief period and no bird would be injured by project construction or operation.

1.4.10 Raptors, Waterfowl, and Migratory Birds

Raptors, waterfowl, and migratory birds (neo-tropical birds, geese, ducks, herons, shorebirds, etc.) use the Pacific Flyway, as a major winter migration route. The bald eagle (*Haliaeetus leucocephalus*), a Federal threatened and California endangered species, could forage along the Cosumnes River and flooded areas in the winter. The peregrine falcon (*Falco peregrinus anatum*), is a California endangered species, and could forage in the project areas. The American bittern (*Botaurus lentiginosus*), a Federal species of concern, and other herons and egrets forage in the agricultural fields and irrigation canals. Raptors such as white-tailed kite, red-tailed hawk, red-shouldered hawk, Cooper's hawk, American kestrel, and Northern harrier occur year-round in the project area. The riparian areas and vegetation along the gas pipeline could provide nesting habitat for these species as well as for resident songbirds, waterfowl, herons, egrets, and bittern. Migratory waterfowl also use riparian corridors during winter migrations. No actively nesting birds are allowed to be disturbed during construction activities.

1.5 Construction Schedule

SMUD expects to begin construction of the CPP facility immediately after receipt of the license (expected in the July 2003) and begin operation of Phase 1 in 2005. The natural gas pipeline construction would potentially encompass two dry seasons, between spring of 2003 and summer 2004, when low water flows are expected in the Cosumnes River and tributaries, and to reduce potential environmental impacts.

1.6 Purpose of the BRMIMP

The purpose of the Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) is to describe how the Applicant will implement mitigation measures such that actions authorized, funded, or carried out by state or federal lead agencies are not likely to jeopardize the continued existence of endangered or threatened species. The protection and mitigation measures developed for endangered or threatened species will also benefit federal and state species of concern (species that are being considered for listing by the agencies).

The BRMIMP describes mitigation measures and guidance for implementation of the measures to protect biological resources within the CPP project area. These measures apply to all temporary and permanent construction areas and operations of CPP and are intended to fulfill the requirements of the Conditions of Certification identified in the CEC Final Decision and all conditions imposed by the regulatory agencies such as the USFWS, CDFG, NMFS, and ACOE. These conditions are summarized in Section 3.0. The Applicant's employees and contractors shall adhere to these measures during construction, operation, and maintenance of CPP and associated linear facilities under direction and guidance of the Designated Biologist and Biological Monitors.

Proposed construction and operation impact areas are shown and described as the Implementation Areas in Section 4.0. This BRMIMP also includes a description of the persons responsible for compliance of the project conditions. The BRMIMP may be modified as necessary both during the pre-construction survey phase and construction implementation.

2.0 Responsible Individuals

The following sections identify the individuals who will implement and monitor the BRMIMP and defines their responsibilities and authority.

2.1 California Energy Commission Compliance Project Manager

The CEC Compliance Project Manager (CPM) is responsible for overseeing compliance of all Conditions of Certification for the CPP project on behalf of the permitting and regulatory agencies. The CPM is designated by the CEC and has the following authority and reporting responsibilities:

- Communicate regularly with the CPP Compliance manager to ensure that the project proponents understand and implement the Conditions of Certification.
- Responsible for determining that those mitigation measures that are implemented meet both the letter and the intent of the Conditions of Certification.
- Receive and provide timely review of monthly and annual compliance reports from the CPP Compliance Manager.
- Inform the CPP Compliance Manager of potential non-compliance and issues that may not have been addressed, and provide CPP the necessary information to take responsive action.
- Inform the CEC if violations of the Conditions of Certification occur that would potentially require an enforcement action.

2.2 CPP Compliance Manager

The CPP Compliance Manager (CM) is responsible for overseeing compliance of all environmental Conditions of Certification for the CPP project on behalf of the project proponent. The CM is designated by the District as its representative and has the following authority and reporting responsibilities:

- Communicate regularly with and report progress to CEC CPM.
- Coordinate with Designated Biologist to ensure compliance with the Conditions of Certification in the BRMIMP and resolve potential biological resource issues.
- Supervise the implementation of all Conditions of Certification.
- Receives and reviews monthly and annual compliance monitoring reports submitted by the Designated Biologist that describe mitigation monitoring activities.
- Evaluates whether BRMIMP implementation is in compliance with mitigation measures and Conditions of Certification.

- Ensures that mitigation measures are effective in minimizing impacts to sensitive biological resources.
- The CM will coordinate with the CEC CPM and forward the biological resources monthly and annual compliance reports.

2.3 Designated Biologist (BIO-1, BIO-2, BIO-3)

The Designated Biologist is responsible for implementing the BRMIMP and providing direct assistance to CPP in avoiding impacts to natural resources. The Designated Biologist must meet the following qualifications, and shall have the following authority and reporting responsibilities:

- Must meet the minimum qualifications outlined in the Conditions of Certification BIO-1 of the CEC's Commission Decision for the CPP project (resumes are presented in Appendix A).
- Must be approved by the CEC CPM at least 60 days prior to the start of groundbreaking activities.
- Advise CPP's Site Superintendent or Project Engineer on the implementation of the biological resources Conditions of Certification.
- Prepare and implement a Worker Environmental Awareness Program (WEAT).
- Supervise and ensure implementation of the mitigation measures.
- Consult with CEC and natural resource agencies on potential biological issues and remedial actions.
- Advise project construction workers if there are changes in the environmental protection plans.
- Notify the District and the CEC CPM of non-compliance with any condition and the corrective actions taken, and advise the construction and operations engineer when to stop and resume construction in sensitive areas.
- Have the authority to stop work if project proponents do not comply with mitigation measures outlined in the BRMIMP.
- Maintain written records of Monthly Compliance Reports to the CPP CM that are forwarded to the CEC CPM.
- Submit monthly and annual reports to the CEC that document compliance with the mitigation and monitoring measures.

The Designated Biologist for the CPP project construction is:

[To be determined]

Qualifications:

Degree: [at least a bachelor's degree in biology, zoology or closely related field]

Field biology experience: [three years of experience in field biology or current certification]

Field experience in project area: [At least one year of field experience with resources in the project field]

Education and experience for required tasks:

2.4 Biological Monitor

The Biological Monitor is responsible for assisting the Designated Biologist in implementing the BRMIMP and providing direct assistance to CPP in avoiding impacts to natural resources. The Biological Monitor shall have the following authority and reporting responsibilities:

- Conducts the day-to-day compliance monitoring in the field during construction activities under the supervision of the Designated Biologist.
- Supervise or conduct mitigation and monitor compliance of mitigation measures, especially in areas requiring avoidance of sensitive habitats and/or species.
- Coordinates scheduling and potential BRMIMP issues between the construction supervisor and Designated Biologist.
- Presents the Worker Environmental Awareness Program.
- Reports compliance or violations of mitigation measures to the Designated Biologist.
- Advises CPP's Site Superintendent or Project Engineer on the implementation of the biological resources Conditions of Certification
- Maintains written daily logs and prepares Monthly Compliance Reports for submittal to the CPP CM that are forwarded to the CEC CPM.

The Biological Monitor(s) for the CPP project construction is/are:

[To be determined]

Qualifications:

[Forthcoming]

2.5 Regulatory Agency Personnel

Regulatory agency personnel are responsible for enforcing state and federal laws protecting sensitive species and natural resources. Staff from these agencies generally have broad authority to monitor and evaluate projects implemented under permits authorized by them,

and can take enforcement actions at any time violations occur. Generally, these staff represent the following agencies, with the associated authority:

- The U.S. Army Corps of Engineers (USACE) is responsible for activities authorized under the Clean Water Act, Section 404 permit for wetland fill or impacts to waters of the U.S. The Corps also administers Section 10 of the Rivers and Harbors Act for construction in or under navigable waterways.
- The U.S. Fish and Wildlife Service (USFWS) is responsible for protecting federally listed endangered and threatened fish and wildlife species, and actions taken pursuant to a Federal Endangered Species Act Section 7 Incidental Take authorization. This would include measures included in the project description or mitigation implementation intended to avoid, minimize, or compensate for adverse impacts to federally listed or candidate species.
- The National Marine Fisheries Service (NMFS) is responsible for protecting federally listed anadromous fish species, including Central Valley steelhead, and the Spring-, Winter-, Fall-, and Late Fall-runs of Chinook salmon.
- The California Department of Fish and Game (CDFG) is responsible for protecting species listed under the California Endangered Species Act, construction activities authorized under a Streambed Alteration Agreement, or incidental take authorized under a Fish and Game Code Section 2081 or 2080.1 agreement.
- The California Regional Water Quality Control Board (CRWQCB) is responsible for protecting beneficial uses of surface water under the Clean Water Act, Section 401 permit for Water Quality protection.

The agencies will receive copies of the relevant monitoring reports that detail compliance with the permits and authorizations issued for the project. These agencies may also conduct unannounced site visits to ensure compliance with project conditions.

3.0 Conditions of Certification and Permits Required for the CPP Project

Conditions of Certification concerning protection of biological resources for the CPP project are described in the Final Staff Assessment and forthcoming Final Decision. The following permits from the natural resource agencies related to biological resources must be acquired prior to the commencement of construction on the CPP project site:

- California Energy Commission (CEC) Final Staff Assessment and Commission's Final Decision
- United States Fish and Wildlife Service (USFWS) Biological Opinion (BO) for federal listed species affected by CPP (BIO-10).
- National Marine Fisheries Service (NMFS) Biological Opinion for listed salmonids in the CPP project area.
- United States Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Wetland Permits for pipeline construction through or under wetlands and rivers/creeks (BIO-11).
- California Department of Fish and Game (CDFG) Streambed Alteration Agreement (SAA) for realigning creeks at the site and for gas pipeline construction through or under ditches, creeks, and rivers (BIO-8).
- CDFG Incidental Take Authorization under Section 2081 of the Fish and Game Code for state listed species (Swainson's hawk) (BIO-7).
- California Regional Water Quality Control Board (CRWQCB) CWA Section 401 Water Quality Certification and/or waiver (BIO-9).
- A CRWQCB National Pollutant Discharge Elimination System (NPDES) is required to use and discharge water during construction.

Copies of the agency permits will be inserted into Appendix E when obtained.

Table 3- 1 presents the CEC Conditions of Certification for CPP to ensure project impacts to biological resources will not jeopardize the continued existence of endangered or threatened species. Table 3-1 will be updated to incorporate all conditions from agency permits when issued prior to construction.

3.1 Worker Environmental Awareness Training (BIO-4)

A Worker Environmental Awareness Training program will be instituted for all CPP personnel and subcontractors who will be working on the CPP project sites. This program includes visual and written materials and identifies the potential impacts that could occur from construction, operation, and maintenance activities of the CPP. The training will

inform all personnel of the requirements to follow to protect sensitive biological resources in the CPP project area. Workers will receive environmental awareness training prior to beginning investigation or construction activities that could adversely affect biological resources. All personnel who receive training will sign a form declaring that they understand and will adhere to the requirements of the project. The CPP Worker Environmental Awareness Training program is outlined in Appendix B.

3.2 Plan Modification Process (BIO-5)

If it is necessary to change mitigation or implementation measures, the CEC CPM will notify the District and the Designated Biologist in writing that a change in project design (engineering, construction methods, etc.) may require a change in mitigation measures and/or implementation measures. The District and the Designated Biologist will then submit a Change Order within 30 days that outlines specific changes or suggestions that will minimize impacts from a change in construction methods or to newly listed species. Within 14 days, the District and the Designated Biologist will then receive authorization from the CEC (and other agencies if required) for the project changes. All requests and approvals will be in writing and included in the Monthly Compliance Reports.

3.3 Facility Closure Plan

Condition of Certification BIO-5 requires a facility closure plan that addresses local biological resources. The facility closure plan is due 12 months prior to permanent closure of CPP. Biological resources-related issues will be included in the Biological Resources Element of the plan. Potential impacts or issues that could occur from MEC closure include but are not limited to:

- Noise from demolition activities could impact nesting birds if initiated during the nesting season.
- Sediments and construction debris could inadvertently be released into creeks and rivers from demolition activities.
- Removal of the stormwater basin could affect frogs, salamanders, and turtles if these species are found to use the basin as habitat.
- New owners of the site would be required to observe the protection and mitigation measures.

Decommissioning of the CPP and supporting facilities could return annual grassland habitat to the area, depending on the LORS existing at that time. This could increase the forage habitat for raptors and other wildlife. However, it is not yet known what will occur on the site after decommissioning. Potential adverse and beneficial effects will be addressed in the Biological Resources Element of the Facility Closure Plan at a time closer to the decommissioning process. Decommissioning of the temporary construction laydown area and restoration will occur as soon as feasible after construction is complete.

4.0 Project Impacts and Mitigation Measures for Sensitive Biological Resources within the CPP Project Area

Table 4-1 (at the end of this section) presents a summary of the impacts by project feature. A mitigation and protection measure established for special-status species and habitats in the CPP project areas is also presented in the following sections.

4.1 Cosumnes Power Plant Site, Electric Transmission Line, Water Supply and Discharge Pipelines, and Temporary Construction Laydown Area

This section describes the proposed project activities and sensitive species on the CPP site and linear extensions to the adjacent Rancho Seco facility. The natural gas pipeline is discussed separately in Section 4.2.

Project construction activities include CPP site preparation, creek realignment, installation of water pipelines, and electric transmission line. The site laydown area is proposed immediately south of the CPP site. The following bullet items and Table 4.1 summarize the impacts for each project feature at the CPP site and linear extensions:

1. Construction of CPP will require 30 acres of annual grassland be leveled and elevated for the CPP footprint, and a 1.5-acre storm water detention pond (Figure 3). These features will result in the permanent loss of 30 acres of annual grassland that includes 0.618 acre of vernal pools, seasonal swale and seasonal stream habitat.

2. Preparation of the CPP site also requires permanent realignment of approximately 2,000 feet of intermittent swales. The swales currently run from south to north through the center of the power plant site and the eastern swale would be realigned to the north and east sides of the site.

3. A temporary construction area is proposed in annual grassland south of the CPP site, south of Clay East Road. Approximately 450 feet of the eastern swale will be realigned to meet up with the realigned swale on the CPP site. Approximately 175 feet of the western swale will be realigned to meet up with the existing western swale under the proposed CPP switchyard. A 100-foot setback will be implemented along the remaining swale segments on the laydown area.

4. The 0.4-long water supply pipeline will extend to the Rancho Seco plant. It will require a 75-foot-wide construction corridor resulting in temporary disturbance to 3.7acres of pasture, annual grassland, and seasonal swale.

EXISTING FLOW PATTERN

EXISTING FLOW PATH TO BE REPLACED W\ SHEET FLOW

FLOW PATH TO BE RE-DIRECTED

RE-DIRECTED FLOW PATH

Limits of Construction

NEW CULVERT

175 0 Feet

N

EXCLUDED AREA

FIGURE X

COSUMNES POWER PLANT

CH2MHILL

File Path: \\thor\cart1\rddgis\Rancho_seco\new_projection_csp83_z2_ft\cpp_construction_sites.mxd, Date: 04 28, 2003,

5. The plant would be accessed from a new road constructed along an existing firebreak. The road would have a permanent easement 24 feet wide, and a temporary construction easement for an additional 25 feet wide..

6. CPP will use Zero Liquid Discharge (ZLD) for discharging process water, eliminating contaminants to Clay Creek and the Cosumnes River watershed.

7. Construction of the poles for the 800-foot-long electric transmission line and stringing the conductors would result in temporary impacts to a 75-foot corridor with annual grassland habitat.

8. Construction of linears and Phase 1 will last approximately 2 years. Site construction for the Phase 2 will continue for approximately 2 more years.

4.2 Natural Gas Pipeline

The following section describes the proposed project activities, restrictions on construction, and sensitive species that occur along the natural gas pipeline corridor from the Carson Ice-Gen pipeline terminus to the proposed CPP site. The natural gas pipeline alignment is located mostly in rural roads and agricultural land use areas. The alignment was modified to avoid the Laguna Stone Lake Preserve area on Franklin Road.

The primary method of gas pipeline construction is open trench; however, there are several pipeline sections requiring jack and bore (e.g. railroads and roads), or horizontal directional drilling (Cosumnes, Badger, Laguna Creeks). Minimum depth of pipe cover is anticipated at 5 feet. The District prefers a conservative depth for agricultural land to avoid damage to the pipeline during tilling and farming activities. Construction vehicles and equipment will be kept to existing roads and approved construction zones delineated by the designated biologist and construction supervisor.

4.2.1 HDD and Jack and Bore

Approximately 5 bores will be done under roadways and railroad crossings. The maximum bore length is 300 feet for a total of 2,000feet of jack and bore construction.

HDD would be used to construction the natural gas pipeline under the Cosumnes River, , Badger Creek, and Laguna Creek.. The HDD would avoid most impacts to sensitive environmental habitat such as vernal pools, wetlands, and riparian habitat that support special-status species. According to current plans, four directional drills will be needed, totaling approximately 8,000 feet. The maximum directional drill is about 2,100 feet. This construction requires a set up locations at either end of the drills that are approximately 150 feet long and 100 feet wide.

Direct impacts to the aquatic and riparian habitat within the waterways corridor will be avoided by using HDD instead of open-cut trenching. A wireless guidance system will be used to avoid cutting or removing vegetation in the Cosumnes Preserve. Temporary impacts to riparian vegetation and aquatic species could occur if inadvertent returns of drilling mud (most often referred to as a “frac-out”) escapes through a fissure in the soil

structure to the surface. A draft frac-out contingency plan has been developed to minimize impacts from inadvertent returns of drilling mud and is presented in Appendix C.

4.2.2 Open Cut Trenching

The remaining portion of the gas pipeline will be constructed by using the conventional open cut trench method. This method requires a trench approximately 3 to 7 feet wide and a minimum of 5 feet deep cover.. Many wildlife species are attracted to confined spaces such as covered trenches. All trenches left open at the end of the day will be required to have appropriate egress (sloped trench walls) to allow trapped wildlife to escape. If an animal becomes trapped and cannot escape, the Designated Biologist must be called for guidance and/or relocation of the animal.

4.3 Implementation Areas

Mitigation measures will be implemented in the project areas (implementation areas) that include those surface land areas that will be permanently or temporarily disturbed during construction, operation, and/or maintenance of the CPP. These areas include the CPP site footprint and all temporary laydown, staging, and horizontal directional drill setup areas; access roads; and construction zones for the storm water pond, water supply, natural gas pipeline, and electric transmission line alignments.

The District prepared GIS mapping of the pipeline and project site, including overlays for construction corridor, project features, aerial photographs and the biological habitats in the project construction areas. Areas where specific measures such as giant garter snake impact avoidance are indicated in the GIS data. In addition to the GIS, the construction area, wetlands, vernal pools and giant garter snakes are depicted in Figure 2 and Figures 5-9 in Appendix E of the Biological Assessment included by reference to this report.

4.4 General Construction Conditions for CPP Project Areas

The measures listed below must be followed to minimize impacts to sensitive biological resources during construction of CPP. In addition, Table 4-2 presents specific work windows established by agencies for special-status species that could occur in the project area.

- No ground disturbance will begin in any CPP construction area until the Biological Monitor has cleared the area for sensitive plants and wildlife.
- All construction workers will be given the Worker Environmental Awareness Training (WEAT) before being allowed on the construction sites.
- All trees that require removal will be removed before the start of nesting season (by February 1) prior to construction or after nesting is complete (generally September 1).
- No construction access will be allowed within the riparian corridor of the Cosumnes River (defined by the outer dripline of trees or top of bank), except to survey, monitor or respond to HDD impacts.

TABLE 4-2
Established Work Windows for Special-Status Species in the CPP Project Area

Species name	Possible Location in Project Area	Active Period	Preferred Biological Construction Window
Vernal pool crustaceans	At CPP site and along gas pipeline	November to April	May through October when soils are dry
Valley elderberry longhorn beetle	Along UPRR and Cosumnes River	Spring to Fall	January through December
California tiger salamander	Farm ponds in south county area that persist for more than 12 weeks, known ¾ mile from CPP.	April to October	April to October in known locations
Giant garter snake	Suitable snake habitat as identified along gas pipeline on Figure 2	May to October (hibernate from October to May)	May 1 through October 1 when snakes are active
Western pond turtle	UPRR and Franklin Rd crossing, Cosumnes Preserve, CPP site	April to October	November to March
Swainson's hawk	Areas with nest trees and Cosumnes Preserve (Figure 2)	March 1 to August 15	August to February near active nest sites or provide continuous biological monitoring and protection measures
Burrowing owl	Any potential nest burrow	March to August	September to February near active nest sites

- Construction Zone Limits will be set up prior to ground disturbance at the CPP site and sensitive project disturbance areas. Construction zone limits apply to the area of immediate surface disturbance as well as any adjacent areas used by vehicles and workers. All construction zones will be identified, marked, and fenced by the on-site construction engineer in consultation with the Designated Biologist or Biological Monitor. Silt fencing and/or high visibility orange fencing will be installed around the perimeter of the work area to mark the construction zone limits and to prevent construction debris and runoff from entering waterways.
- Construction personnel will implement the work windows when close to sensitive resources under the guidance of the designated biologist.
- A Biological Monitor will be onsite during initial groundbreaking activities to conduct preconstruction clearance surveys, to salvage and relocate wildlife, and to monitor activities in or near sensitive habitats (waterways, riparian areas, potential nest areas).
- If additional construction is needed in areas not previously surveyed for biological resource impacts or approved by the Designated Biologist, these areas will not be disturbed until it is determined that the disturbance will not cause significant impacts. The Designated Biologist will obtain concurrence from the CEC (and other agencies, if required) of the project changes and document approvals in writing through the Plan Modification Process (see Section 3).

- All measures identified in the FSA for construction restrictions will be implemented, including daily trash pick up, prohibit feeding wildlife, etc.
- Construction activities will use the protection measures described in the Erosion Control and Revegetation Plan (Appendix D) and/or contractor's erosion control plan.

4.5 Habitat Compensation

Based on an evaluation of the opportunities and constraints of mitigation, the District proposes to implement measures to compensate for permanent loss of wetlands and habitat for special-status species from construction of the CPP facility. Final habitat compensation requirements are described in the Biological Assessment, and will be determined through formal consultations with USFWS and CDFG with oversight from CEC. Proposed habitat compensation for individual species are included in the following sections.

4.6 Special-Status Species within the CPP Project Area

Special-status plant or animal species observed on the CPP site during field surveys include Federal threatened vernal pool fairy shrimp and endangered vernal pool tadpole shrimp. In addition, several special-status species probably occurring in the general vicinity include:

- Vernal pool fairy shrimp and vernal pool tadpole shrimp could occur in vernal pools north of and adjacent to the CPP site and along the gas pipeline
- Western pond turtle, chinook salmon, Central Valley steelhead, Sacramento splittail could occur in the Cosumnes River, Badger Creek, Laguna Creek, and tributaries. Turtles also occur in ponds along the gas pipeline and north of the site.
- California tiger salamander dispersal habitat may be present in the eastern portion of Rancho Seco in seasonal ponds.
- Giant garter snake could occur in tributaries to Cosumnes River, with a known population in Badger Creek. Giant garter snakes also occur in drainage ditches and ponding areas throughout the gas pipeline alignment.
- Swainson's hawk foraging habitat occurs along the gas pipeline and CPP site.
- Swainson's hawk nests have been reported at the Carson Co-Gen site, near the corner of Elk Grove and Franklin, Core Road and UPRR, Arno Road and Valensin Road, Cosumnes River Preserve, Highway 99 HDD crossing, and Laguna Creek HDD crossing. Preconstruction surveys to verify presence or absence are appropriate. Restrictions on construction may occur along the gas pipeline from March through September.
- Burrowing owls occur in mammal burrows along Simms Road at the Carson Co-Gen site, and could occur along railroad tracks, creek banks and agriculture fields where ground squirrel burrows are located.
- Greater Sandhill cranes winter in the Cosumnes Preserve and forage in the field surrounding the Preserve.

- Nesting birds could occur in the riparian habitats along the Cosumnes River and tributaries as well as other areas with vegetation and trees. Nesting birds must be avoided.
- Migratory birds could use the CPP site as winter forage habitat and should be avoided.

Specific protection and mitigation measures for these species are presented below.

4.6.1 Mitigation for Vernal Pool Plants and Invertebrates (BIO-22)

The grassy plateau east of Rancho Seco supports many vernal pools in a nearly natural state. Between the project site and Rancho Seco, there is a complex of degraded swales that have some vernal pool characteristics, and may support some vernal pool fauna that is crossed by existing power lines and underground pipelines. Transmission lines and water supply lines for the CPP project would also cross through this area.

Tadpole shrimp were observed in a vernal pool located near the north end of the site, that would be filled by construction of the storm water detention basin. Because trenching can interfere with local hydrology supporting vernal pools, the USFWS considers an area out to 250 feet to be adversely affected, unless site-specific hydrologic information is provided to indicate there is no effect. An example would be if vernal pools were upgradient from the presumed affect. The gas pipeline alignment crosses many railroad-berm ditches and ponding areas in the vicinity of Franklin Boulevard that have hydrology similar to vernal pools, and vernal pool plants and invertebrates may be present.

Mitigation would consist of providing off-site habitat and management of existing or created vernal pools to support the resources that would be affected by the project. A Biological Assessment (BA) has been prepared under formal Section 7 consultation for the CPP project that describes project impacts and a proposed mitigation. The BA would be submitted by the lead federal agency to the USFWS who would prepare a Biological Opinion limiting the amount of incidental take of listed species. If the vernal pool is found to be under the jurisdiction of the USACE through a wetland delineation, mitigation for loss of wetlands would be incorporated into the vernal pool species mitigation. The final mitigation requirements for the vernal pools and vernal pool species would be negotiated between the USACE, USFWS, and the District.

4.6.2 Protection of Fish and Aquatic Species in Waterways

The Cosumnes River and tributaries support chinook salmon, steelhead, and Sacramento splittail, as well as invertebrates that support these species. Protection measures were developed for CPP to prevent sediments and construction debris from entering waterways (see erosion control plan in Appendix D). Silt fencing and/or other sediment controls will be used at each construction location, including the storm water outfall. Storm water from the CPP site during operation will be discharged under a NPDES permit. The discharge will be monitored according to the requirements of the permit.

The use of HDD for constructing the gas pipeline under the Cosumnes River, Badger and Laguna creeks, and Cosumnes River Nature Preserve will minimize impacts to the aquatic and riparian habitat., especially when conducted during the dry season when fish are not present. However, potential impacts could occur if inadvertent returns of drilling mud

(frac-out) enter the waterway through a fissure or crack in the soils. The drilling mud (normally bentonite) is a non-toxic clay material often used as an impervious layer in wetland construction and by farmers as a soil enhancement. When drilling muds enter a waterway, it can smother benthic invertebrates, aquatic plants, fish eggs, and young fish. A draft contingency plan has been developed for the CPP HDD activities and is presented in Appendix C. The plan outlines how an inadvertent return of drilling mud will be minimized, contained, and cleaned up. It also presents emergency contact numbers and a spill response team to contact in case of excessive spills. A streambed alteration agreement is required by CDFG for HDD under waterways.

A Biological Monitor will be on-site or on-call during the HDD and will assist SMUD in monitoring for frac-outs during the drilling operation. The Biological Monitor will consult with CDFG and assist in coordinating the containment and clean up of spilled drilling mud.

- HDD equipment and materials will be located at least 150 feet from Cosumnes River and Badger and Laguna Creeks riparian corridors.
- Construction under the waterways should occur during the dry season (July through October) when salmon and steelhead are not expected to be in the river and creeks.

4.6.3 Protection for California Tiger salamander and Western pond turtle (BIO-18)

Appropriate breeding habitat for California tiger salamander and western pond turtle was not identified on the CPP site or within the project construction zones for the gas pipeline and water supply alignments. However, breeding habitat was identified within ¾ mile east of the site, on Dry Creek Ranch Road, making the CPP site potential aestivation habitat (areas of summer shelter). Protection measures include conducting ground disturbance on the CPP site during the dry season and having a biological monitor on site during ground disturbance to salvage and relocate tiger salamanders within the construction impact areas. Habitat compensation for vernal pool fairy shrimp will be completed in an approved mitigation bank with California tiger salamander. The gas pipeline would be placed under ponds and waterways supporting pond turtles with the use of HDD. These areas will also require a biological monitor during construction activities. Protection measures developed for CPP to prevent sediments and construction debris from entering waterways (see erosion control plan in Appendix D) would reduce adverse affects to water quality and any tiger salamanders or pond turtles that occur downstream of the project.

4.6.4 Protection Measures for Giant Garter Snake (BIO-19 and BIO-20)

Appropriate habitat for giant garter snake (GGS) comprises aquatic habitats with dense cattail or bulrush cover, downed woody debris, and partial shading to provide thermal cover and prey species (frogs, tadpoles, fish). Wetland habitats on the project site do not have permanent water and dense cover that would support fish or highly aquatic species such as the giant garter snake; however, it is known to occur in the Cosumnes River Nature Preserve, and could be present in Badger Creek, Laguna Creek, or connected waterways and drainage ditches that support appropriate habitat and prey. The gas pipeline crosses or passes close to wetland and marsh habitats ranging from completely aquatic sites (Cosumnes River, Badger Creek, Laguna Creek), cattail and bulrush marsh (Cosumnes River), farm ponds (Arno Road,

Valensin Road), roadside ditches and swales (near town of Franklin, south of CCF), and vernal pools.

Giant garter snakes are actively foraging in warm months from May through September and typically hibernate in underground burrows (hibernacula) from October through April and are highly susceptible to earth moving equipment during this time. Impacts to giant garter snakes can occur from the excavation of streams and/or irrigation canals and hibernacula during hibernation periods.

The "Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake Habitat" (USFWS 1997c) will be implemented during construction.

Construction at irrigation ditch crossings will be restricted to May 1 through October 1. A qualified biologist will conduct preconstruction surveys for giant garter snake at these crossings and may have to dewater areas for at least 14 days prior to construction disturbance.

Worker awareness training to emphasize how giant garter snakes will be protected will occur prior to commencement of construction activities.

In the event that a giant garter snake is found, clearing and grubbing at the location will not commence or, if underway, immediately be halted until the snakes have been allowed to leave the construction site.

Impacts to giant garter snake include construction-related disturbance of 41.5 acres of giant garter snake habitat. To compensate for these impacts, the permittee will provide compensatory habitat in a USFWS and CDFG approved mitigation bank or other area prior to construction.

4.6.5 Mitigation and Protection Measures for Swainson's hawk (BIO-14)

Swainson's hawks nest in large riparian cottonwoods, oaks, and other large trees and forage over short-grass prairies and farm fields up to 10 miles from the nest. Swainson's hawks are sensitive to disturbance during nesting and CDFG recommends a 0.5-mile buffer between construction and active nests. Swainson's hawks could potentially nest in the riparian trees in the mine tailings 0.3 mile east of the project site, or in the trees surrounding Rancho Seco Reservoir. Several areas along the gas pipeline route have the potential for nests, particularly in the Cosumnes Nature Preserve. A Swainson's hawk could nest in any of these in any year. Construction along the pipeline could potentially cause nest abandonment.

Preconstruction surveys during the nesting season (March 1 through September 15 or until birds have fledged), including within 0.5 mile buffer areas, were conducted in April 2003, and will be conducted within 48 hours prior to construction and related activities in potential nesting areas. Seven nest sites were identified within 0.5 mile of the pipeline alignment during the 2003 preconstruction surveys. Survey results will be provided in a written report to CDFG and CEC. If nesting Swainson's hawks are found, the project proponent will consult with CDFG to determine if construction activities could cause reproductive failure (nest abandonment and loss of eggs and/or young). If, in the course of consultation with CDFG, a determination is made that the construction activities could

cause reproductive failure (nest abandonment and loss of eggs and/or young), no construction activities will be allowed between July 1 and September 15 within 0.5 mile from the nest site until young have fledged, or the adults are no longer nesting, except with written consent of CDFG. An alternative may be that CDFG allows a qualified biological monitor to observe the nest and stop construction if activities could result in a hawk abandoning the nest or young.

Impacts to Swainson's hawk include potential construction-related disturbance of one or more Swainson's hawk nests and the permanent loss of 53.9 acres of Swainson's hawk foraging habitat. To compensate for these impacts, the permittee will provide compensatory upland forage habitat in a CDFG approved mitigation bank or other area prior to construction. Final mitigation measures are being addressed in the CDFG 2081 permit when consultation is complete.

4.6.6 Protection Measures for Western Burrowing Owl (BIO-15)

The burrowing owl is known to nest in the Central Valley. Although none was observed during field surveys of the site, railroad berms, canal banks and agricultural areas near the project areas may contain suitable habitat for burrowing owls, if squirrels and burrows are present.

The following measures would minimize the potential impacts to burrowing owls:

- Preconstruction surveys of pipeline and linear facilities would be conducted in the spring to determine whether the ground squirrel burrows are occupied by burrowing owls.
- Protect active nest burrows with a 250-foot buffer during the breeding season (February 1 through August 31 or until young have fledged).
- Conduct passive relocation prior to construction if winter burrows are found before February 1 and/or restrict construction activities within 150 feet during non-breeding season.
- Provide habitat compensation for any active nest burrow that could not be avoided during construction through consultation with CDFG.

The preconstruction surveys in April 2003 indicate no burrowing owls would be affected by the CPP project construction, therefore, no compensatory habitat replacement is proposed as indicated in BIO-15.

4.6.7 Protection for Greater Sandhill Cranes

Greater sandhill cranes are Fully-protected by CDFG and are present in the project area as winter migrants, particularly in the Cosumnes Preserve near Highway 99. Greater sandhill cranes cannot be taken (harmed or killed) due to Fish and Game Code section 3511. The CDFG and the permittee are cooperatively working on measures to avoid take of greater sandhill cranes during the project. The CDFG believes that if the following measures are implemented by the permittee, no take will occur.

Construction of the HDD under Cosumnes River should occur during the dry season (summer) when sandhill cranes and anadromous fish (salmon and steelhead) are not in the rivers. If construction occurs when cranes and fish are not present, no impacts would occur.

If construction is to occur during the time when greater sandhill cranes are present (September 1 to March 14) the following measures shall be implemented:

Construction activities within 200 yards of important roosting habitats (open agriculture fields, particularly harvested corn) in the Cosumnes Preserve will be prohibited from September 15 through March 14 of each year unless the Department determines that construction activities can be allowed within this time period without "taking" sandhill crane. Important roosting habitats have been identified east of Highway 99, and southwest of the pipeline alignment west of Highway 99.

Construction activities would potentially reduce the use of the agricultural fields adjacent to construction during the estimated 4-6 weeks required, if construction occurs during September 15 through March 14. Sandhill cranes forage over a large area of the Cosumnes Watershed and this temporary affect would not result in mortality or "take" of this fully protected species.

Cosumnes Preserve

Any work that occurs in Cosumnes Preserve must follow these conditions:

a. Restore all ditches, culverts, roadways, and fences to their original condition or better.

b. Restore the ground surface to its original condition.

c. To the extent feasible, all work should be completed from March 15 through September 14, while sandhill cranes are absent from the project area. No construction during September 15 through March 14 would be allowed within 200 yards of important roost sites, without the concurrence of CDFG.

d. No sycamore or willow trees or other riparian trees shall be removed, cut or destroyed.

If CDFG discovers that such measures are not adequate to prevent take of one of these fully protected species, CDFG shall notify the permittee in writing and propose different conservation measures it believes are necessary to avoid take of these species. The permittee shall implement such measures proposed by the Department or other measures agreed to by the Parties to avoid take of fully protected species.

4.6.7 Protection for Nesting and Foraging Birds

Raptors, herons, egrets, waterfowl, and belted kingfisher are resident and migratory species occurring in the CPP project area, and are protected under the Migratory Bird Treaty Act and California Fish and Game Code. Disturbance of nest sites , which is prohibited under Section 3503.5 of the Fish and Game Code, could result in abandonment of eggs or young.. Since the newly proposed transmission lines are adjacent and parallel to existing transmission lines, this potential is minimized.

Preconstruction surveys will be conducted for nesting raptors within 500 feet of construction activities. Surveys will also be conducted within 100 feet on either side of the

entire gas pipeline alignment. Resident birds often begin nesting as early as February in California. Nest searches will be conducted in December/January (if not earlier) before site construction begins and the vegetation within laydown and construction areas will be removed and/or mowed by February 1st to minimize the potential for birds to nest within the construction areas. If nests are found with no eggs or young, the nest will be removed. If nesting birds with eggs or young are found during the surveys, the Biological Monitor will coordinate with the Designated Biologist and CDFG for possible relocation or rehabilitation at an approved wildlife rehabilitation center.

Raptor Monitoring

Field surveys to identify active raptor nest sites will be conducted in the spring prior to construction. If nest sites are found within ½ mile of construction areas, the Designated Biologist will implement mitigation measures appropriate to the circumstances. The designated biologist will determine if the active nest site could be adversely affected by construction noise and activities. In most cases, a construction zone limit will be placed around the nest site at a distance of not less than 500 feet. If an exclusion zone cannot reasonably be implemented at this distance, the following measures may be implemented:

1. The District may postpone construction in that area until young are fledged, or
2. Provide a Biological Monitor to monitor the birds on the nest and stop construction if it appears that the birds will abandon the nest or young, or
3. Consult with the CDFG if construction appears to jeopardize the nesting success and provide for the artificial rearing of eggs or young by qualified rehabilitation staff.

Construction in the forage areas of breeding birds will also be monitored to determine if disturbance could cause failure of birds to adequately provide for themselves and their young. The Designated Biologist will stop work if it appears the construction activities will obviously impede reproductive success.

TABLE 4-1
Summary of Permanent and Temporary CPP Project Impacts on Biological Resources During Construction.

Location	Project Work	Construction Zone Size	Time Requirements	Habitat Type	Sensitive Biological Resources	Impacts	
						Temporary	Permanent
Power Plant Site	Grading for footprint construction	30 acres	Start 3rd quarter of 2003	Pasture/ annual grassland, seasonal swale, seasonal marsh, vernal pool	Vernal pool fairy shrimp Plants in wetlands	None. All of site would be converted from habitat	Potential loss of 30 acres of annual grassland habitat. Relocation of 2,000 feet of seasonal swale.
Stormwater detention pond	Grade berms into place surrounding detention pond	1.5 acres, approximately 560 ft. x 160 ft.	3rd Qtr 2003	Pasture/ annual grassland,	Seasonal swale	Clear and grade 2 acres of vegetation, expected to recover to annual grassland. Potential sedimentation to creek during construction	Approximately 1.5 acres of habitat would be permanently converted from annual grassland and 0.1 acre vernal pool to berms surrounding detention pond
Construction laydown area, south of Clay East Road	Construct compacted gravel pad	18 acres	3rd Qtr 2003	Pasture/ annual grassland	None	Grading and compaction of up to 18 acres.	None. Laydown area would be restored to pre-construction conditions after Phase II.
Site Construction Access Road	Construct new access road along existing firebreak	0.5 mile x 24 feet wide permanent easement, additional 0.5 mile x 25 feet for construction	3rd Qtr 2003	Disturbed annual grassland	Seasonal swale crossings in 3 locations	1.5 acres	1.5 acres
Natural gas pipeline from Carson Cogen to project site.	Gas pipeline trench	26-miles of trench with 8,000 ft HDDs. 65' construction right of way, 25' permanent easement	3rd Qtr 2003	Road, railroad berm, pasture, annual grassland, vineyard	Vernal pools, Swainson's hawk, wetlands, Cosumnes River, Laguna Creek, Badger Creek	Disturbance of 240 acres of agricultural, rural, ruderal, urban, pasture habitats.	Topography, vegetation and hydrology would be restored. CPP commits to provide compensation habitat for wetlands as required by

TABLE 4-1
Summary of Permanent and Temporary CPP Project Impacts on Biological Resources During Construction.

Location	Project Work	Construction Zone Size	Time Requirements	Habitat Type	Sensitive Biological Resources	Impacts	
						Temporary	Permanent
							ACOE/ USFWS.
Gas Pipeline Compressor Stations	Small fenced areas around compressors	Two sites 150 feet by 150 feet contained in existing fenced disturbed areas.	Summer 2008	Ruderal, packed earth, gravel area generally within and adjacent to fenced compound	None likely within fenced area. Potential for burrowing owls near compressor at SRWTP	0 All disturbance within existing bare area.	
Water supply line	Pipeline trench	800-foot pipeline routed south from Rancho Seco Plant to site. 65-foot-wide construction corridor , no permanent corridor	Summer 2003	Pasture, annual grassland, vernal pools	Vernal pool species, wetlands	Disturbance of <1.3 acres of disturbed grasslands	None. Pipeline area would be restored to pre-construction conditions
Stormwater discharge	Pipeline trench	200 feet long to Clay Creek. 65-foot-wide construction corridor, 51-foot- wide permanent disturbance at outfall.	Summer 2003	Pasture, annual grassland, seasonal swale	Vernal pools, sedimentation to surface waters	Disturbance of 0.3 acres of disturbed grasslands	Conversion of < 0.1 acres for outfall structure to Clay Creek
Transmission towers	Transmission tower footings, construction and maintenance	800 feet long from CPP to Rancho Seco Plant. 65-foot-wide construction corridor , 25-foot-wide permanent corridor. 6 poles required.	Summer 2003	Pasture, annual grassland, seasonal swale	Vernal pools, sedimentation to surface waters	Disturbance of 0.3 acres of disturbed grasslands	Conversion of <0.004acre for transmission tower footings

TABLE 4-1
Summary of Permanent and Temporary CPP Project Impacts on Biological Resources During Construction.

Location	Project Work	Construction Zone Size	Time Requirements	Habitat Type	Sensitive Biological Resources	Impacts	
						Temporary	Permanent
Emergency/ Fire Water Supply Line	Pipeline trench	200 feet long to RSP-to-RS Reservoir pipeline 65-foot-wide construction easement.	Summer 2003	Pasture, annual grassland, seasonal swale	Vernal pools, sedimentation to surface waters	Disturbance of 0.3 acres of disturbed grasslands	None
Project site and along pipeline	Water disposal for dust control and pipeline testing	Project site (30 acres), laydown area (20 acres), pipeline corridor (240 acres)	3rd Qtr 2003 through 4th Qtr 2004	Graded annual grassland, agricultural or roadside berms	Erosion/ Sedimentation to surface waters. Disposal of pipeline test water	Length of pipeline and project site during construction	None
Total						**242.5 acres**	**32.46 acres**

Additional detail concerning project impacts is provided in text and tables in the Biological Assessment for the project.

5.0 Erosion Control and Revegetation of Disturbed Areas

This section briefly summarizes the protection and control measures in the Stormwater Pollution Prevention Plan and Erosion Control Plan in Appendix D.

Sediment control measures will be used to minimize the local and off-site transport of detached particles that would not normally be in the natural channel system. The intent of such measures is to slow down the flow and promote deposition in controlled locations or to trap the sediment either by capturing and retaining the runoff or by filtering the flow to retain the sediment.

These measures will be specified under the required NPDES General Construction Permit for the site and the Storm Water Pollution Prevention Plan (SWPPP) that will be prepared as part of the NPDES permit. The SWPPP includes plan drawings of the site showing where specific types of erosion and sediment control measures will be used, detailed drawings of each measure, and a list of specifications provided to the contractor about how each of these measures is to be implemented or installed (Earth Tech, 2001).

The following measures are typical will be used to control sediment transport.

- Straw bales, silt fences, and sand bag barriers will be used to slow flows and promote sediment deposition.
- Sediment traps and sediment basins collect sediment and prevent it from being transported further downstream.

Vegetative buffer strips leave existing vegetation adjacent to natural stream channels or downslope from cleared areas to retard flow and capture sediment carried by sheet flow.

The performance criteria for erosion and sediment control measures will include:

- Grading surfaces so that runoff is directed to sediment control structures
- Scheduling grading during the dry season (March 15 through October 15)
- Installing erosion-control structures and hydroseed prior to the rainy season
- Inspecting and maintaining erosion control structures regularly
- Designing erosion control measures and structures according to the standards of Sacramento County

The selected erosion and sediment control measures will be applied to limit or prevent soil erosion (the detachment of soil particles) and manage or control the movement of mobilized sediment. Additionally, controlling surface runoff can limit the amount of erosion caused by concentrated flows. The following measures will be used to control flow or protect against channelized flow.

- Constructed drainage swales will be used to collect surface runoff and direct it away from disturbed surfaces
- Sandbags and small check dams will be used to control and direct flows away from disturbed surfaces, as well as to contain sediment particles that are dislodged
- Earthen dikes will be used to slow the flow of water and reduce its potential for erosion as well as to contain sediment
- Subsurface drains will be used to reduce the buildup of shallow subsurface water and reduce the potential slumping and sloughing of large amounts of soil which would then be available for erosion by surface water
- Riprap protects vulnerable channel or slope surfaces from the erosive forces of concentrated flows.

If any of these activities mentioned above require further authorization from regulatory agencies, permitting will be expedited during the mitigation process.

The reestablishment of vegetation is important for preventing erosion, and the following methods will be used in uplands adjacent to the wetlands to promote new vegetative growth or protect bare ground surfaces until vegetation can be reestablished. Disturbed areas will be restored to preconstruction contours and revegetated with native and non-native species for erosion control.

- Areas to be restored will be restored as soon as construction is complete and seeded or planted before the rainy season begins.
- Hydroseeding with a soil binder will provide seeds for regrowth of either temporary or permanent vegetation and will help to stabilize uncovered ground surfaces
- Sod stabilization places already established grass as a cover
- Mulching, fiber mats, or other erosion control blankets cover and protect bare surfaces; such measures can include seeds or are used to trap seeds from local plants.

6.0 Implementation Schedule

Implementation of the mitigation measures outlined in this BRMIMP will be conducted throughout the construction and operation of the CPP project. Table 6-1 outlines a relative schedule for implementation of mitigation measures.

TABLE 6-1
Relative Schedule for Implementation of Mitigation Measures

Task	Timing
Construction mitigation monitoring by Designated Biologist	July 2003 through September 2007 (assuming construction of both phases)
Worker environmental awareness training	At project initiation and when new construction workers come onsite.
Preconstruction surveys	At each construction area no more than 48 hours before disturbance occurs and before nesting season for raptors each year of construction
Construction zone limits	Prior to any surface disturbance
Timing restrictions on construction	At initiation of project and after preconstruction surveys
Habitat compensation	Prior to project construction, expected third quarter of 2003.
Erosion control and revegetation of disturbed areas	Erosion control during construction and revegetation in October after temporary disturbance
Monitoring plans and reports	Plans available prior to construction of CPP for annual monitoring reports due as identified in the Final Decision and agency permit conditions
Summary Report for Implementation and Success of Mitigation Measures	30 days after construction completion

7.0 Implementation Monitoring/Verification Program

Verification of mitigation will be documented on daily monitoring logs, Monthly Compliance Reports, and in the final BRMIMP Summary of Mitigation Measures for the CPP Project that will be submitted to the CEC within 30 days after completion of construction. The wetland monitoring and annual reports will continue after the final BRMIMP Summary report for the indicated duration.

Compliance of each mitigation measure will be monitored by the Designated Biologist according to the schedule in Table 7-1 and documented on compliance verification forms or daily logs (Figure 4) for each site visit. The daily forms will record where, when, and how construction activities are performed and whether compliance was met. Monthly Compliance Reports will summarize the activities for each month. The summaries will include a discussion of whether the mitigation measures were successful, compared to the success criteria where applicable. It will also include all of the plan modifications and remedial measures taken if the success criteria were not met during the mitigation monitoring process. Table 7-1 outlines the performance standards or success criteria for each mitigation measure.

TABLE 7-1
Monitoring Tasks and Criteria that Determine Successful Implementation of Mitigation Measures

Mitigation Measure	Monitoring Type	Monitoring Duration	Monitoring Frequency	Success Criteria
Construction zone limits	Onsite observation	Throughout construction	Daily or as needed	No adverse impact to adjacent habitats
Preconstruction surveys	Direct observation	Throughout construction	Daily for ground disturbance and 6 times each spring for raptor nests	Summary in monthly compliance report
Habitat Compensation	Payment and Signed Agreements	In perpetuity	Once	Copy of receipt to CEC
Worker Environmental Awareness Training	Direct observation of attendance	Throughout construction for new employees	At start of project construction	Signed affidavits
Erosion Control and Revegetation Plan	Direct observation of performance	2 years after seeding	Annually for 2 years	Successful growth of vegetation in planted areas

A master compliance verification form will be completed by the Designated Biologist and included in the final compliance report to the CEC CPM.

Figure 4. Daily Compliance Verification Report Form.

COMPLIANCE VERIFICATION REPORT Report Number:		
Project:	Date:	
Location:	Arrival time:	Departure time:
Responsible party:		
Compliance monitor:	Discipline:	
Monitored mitigation measure:		
Frequency of monitoring:		
Compliance criteria:		
Compliance: ☐ Acceptable	☐ Unacceptable:	
	☐ Remedial action implemented	
	☐ Require work stop	
	☐ Follow-up required	
Activity:		
Observations:		
Recommendations:		
Report approval:		
Print name:	Signature:	
Receipt acknowledged by resident construction supervisor:		
Print name:	Signature:	
Date: Time:		
Comments/Actions:		
Data entered into Monthly Monitoring Report:		

8.0 References

Federal Register. 1996. 50 CFR Parts 222 and 227. Endangered and Threatened Species: Proposed Endangered Status for five ESUs of Steelhead and Proposed Threatened Status for five ESUs of Steelhead in Washington, Oregon, Idaho, and California.

Federal Register. 1997. 50CFR Part 227. Endangered and Threatened Species: Notice of Partial 6-Month Extension on the Final Listing Determination for Several Evolutionary Significant Units (ESUs) of West Coast Steelhead. Monday, August 18.

Jennings, M. and Hayes, M. 1994. Amphibian and Reptile Species of Special Concern in California. Prepared for the California Department of Fish and Game Inland Fisheries Division.

SMUD (Sacramento Municipal Utility District). 2003. Biological Assessment for the Cosumnes Power Project.

USBR (U.S. Bureau of Reclamation). 1997. Central Valley Project Improvement Act Draft Programmatic Environmental Impact Statement. Sacramento, California. September.

USFWS (United States Fish and Wildlife Service). 1995. *Sacramento-San Joaquin Delta Native Fishes Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon.

Zeiner, D. 1990a. California's Wildlife. Volume II. Birds. California Statewide Wildlife Habitat Relationships System.

Zeiner, D. 1990b. California's Wildlife. Volume III. Mammals. California Statewide Wildlife Habitat Relationships System.